

HABITAT TYPES AND SEASONS

The principal habitat types of the Peruvian Amazon are a result of large-scale geological changes that occurred during the tertiary and quaternary periods. The Yarapa River basin is situated in the Pevas lakebed that formed after the uplifting of the Andes. When the Pevas Lake drained it left a geological depression in this area of western Amazonia, the Ucamara depression, which is currently characterized by alluvial soils.

The wildlife of the Yarapa River lives in an ecosystem that is characterised by large seasonal fluctuations occurring between the high water and low water seasons. The ecology of the aquatic and terrestrial wildlife revolves around these seasonal changes in water level.

The large seasonal inundations that annually occur along the immense floodplains of the Amazon River are a result of rainfall in the foothills of the Andes. During the summer months of October to May precipitation off the southern Atlantic Ocean results in heavy rainfall on the eastern Andes that runoff into the western Amazon basin. The result is large scale flooding along the major rivers situated in the flooded forests in the high-water season. In contrast, during the winter months of June to September the precipitation off the southern Atlantic Ocean decreases and the rain in the eastern Andes is greatly reduced, resulting in the drying up of the western Amazonian rivers and the low water season.

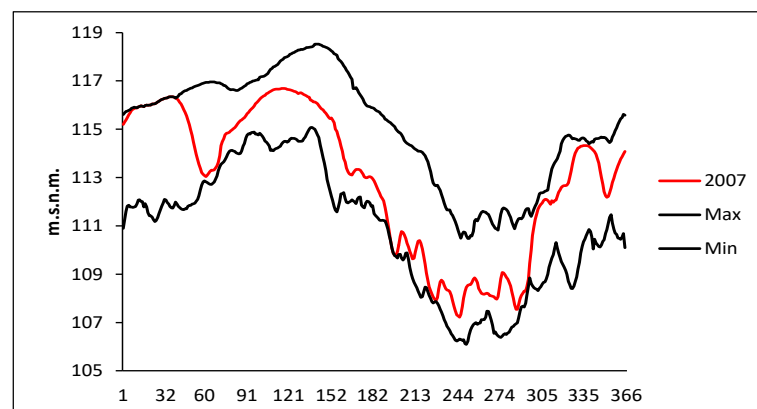


High Water



Low Water

These photos are of the same location between the high water season and low water season



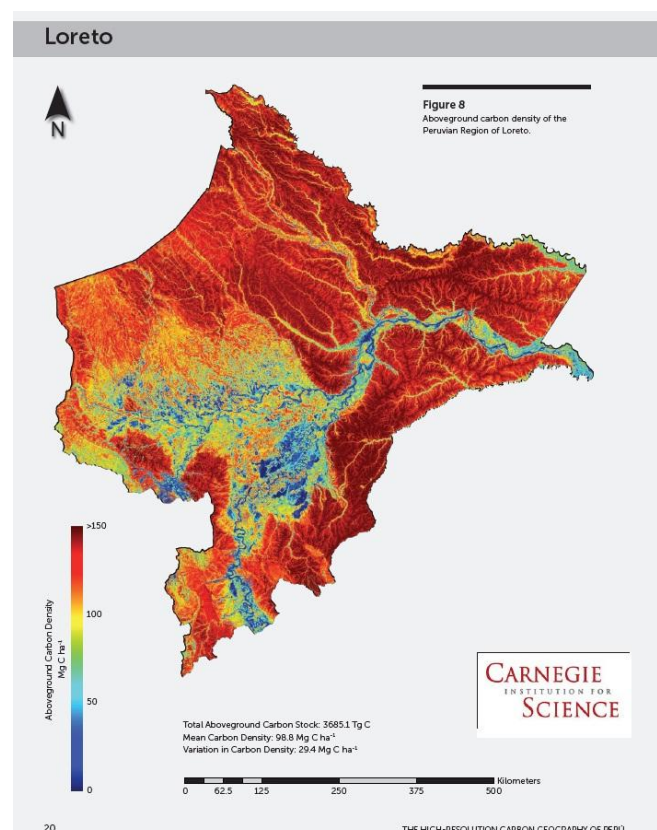
Days of the year

This figure shows you the annual fluctuation in water level of the Amazon River in meters above sea level (y-axis) and the days of the year (x-axis).

The Amazon River is an order of magnitude greater than any other river basin on Earth. The rivers that originate in the eastern Andes are rich in sediments that are picked up from the recent geological formations of the Andes, giving the rivers a whitish colour. These white-water rivers continually deposit and pick up sediments as they flow through the old Pevas lake bed of western Amazonia.

The white-water rivers of western Amazonia are extremely dynamic and change course in a matter of a few years, with islands and channels continually forming and being washed away. This is a result of three concurrent factors, 1) the soft alluvial soil of the area, 2) the enormous volume of water that passes through the basin as a result of precipitation, and 3) the large quantities of sediments that are picked up and deposited as the rivers run their course.

The study site is situated near the confluence of the two largest tributaries to the Amazon in Peru, the Ucayali and Marañon Rivers. The meeting of these two rivers come together to form the Amazon River proper. The Ucayali and Marañon Rivers have snaked back and forth across the flooded forests over the millennia leaving behind an abundance of oxbow lakes, channels, levees, and other geological features.



The lighter, yellower, areas of this map show the flooded forests of the Ucamara depression.

The soils of the flooded forests in the study site are rich in nutrients due to the white-water rivers of the Ucayali and Marañon flowing through the forests and depositing sediments during the high-water period. The flooded forests are characterised by a blackish colour during high water. This is a result of the white water from the Amazon entering the flooded forests, depositing the sediments as the currents slow during their movement through the forests, and the water picking up tannins from the leaf litter.

Whilst the soil of these várzea forests is rich, the ecological conditions of long periods of flooding, up to 6 months, is very harsh on much of the floral and faunal community. Many plant species cannot withstand the long periods of inundation and the diversity of plants in the heavily flooded areas is lower than lightly and non-flooded levees. Likewise, the terrestrial wildlife must seek out floodplain islands or levees during the high-water season, which have increased competition and predation pressures. Even the arboreal wildlife is impacted by the flooding, since many of the fruit trees are quite seasonal in the várzea forests, resulting in seasons with low food production.

The aquatic wildlife is equally affected by the large seasonal inundations. During the flooded periods the fish enter the flooded forests and feed on the abundance of vegetative and animal production, especially the abundance of fruits, invertebrates and other living organisms trapped in the annual floods. Indeed, many trees fruit during this season and rely on the fish as their primary means of seed dispersal. During the flooded period many fish populations reproduce within the inundated forests.

Other aquatic wildlife have a more difficult time during the floods, such as the dolphins, giant river otter and other fish predators, since their prey is more sparsely distributed throughout the large expanses of the flooded forests. When the waters recede during the dry months, fish populations become condensed in the reduced lakes, rivers and channels with ever increasing competition and predation. During this period many fish populations migrate out of the Várzea rivers and into the larger rivers. The dolphins and other fish predators have an abundance of prey during the low water season and even follow the fish migrations down the rivers and channels.

The people who live in the flooded forests also have adapted to the seasonal fluctuations in both the use of the natural resources and their agriculture. During the high-water season fishing is more difficult, since the fish are dispersed throughout the inundated forests. However, during this period hunting becomes easier with the large bushmeat species, such as deer, peccaries and tapir being trapped on the levees and islands. In contrast, during the low water season the bush meat species become difficult to hunt as they range throughout the entire forests, and the fish become easy prey being trapped in the reduced water bodies of the lakes, channels and rivers. The local indigenous people of the floodplain forests alter their hunting and fishing accordingly, with a greater emphasis on hunting during the high-water season and a greater focus on fishing during the low water season.

The agriculture of people inhabiting the flooded forests takes advantage of the rich soils from the annual deposits of sediments and the short growing period that needs to be harvested before the floods return. Traditionally, people of the flooded forests have relied on the manioc as their staple agricultural product. Manioc has a short growing period that can be planted and harvested within the low water season. Manioc flour (*fariña*) is produced by baking pounded. Manioc flour can be stored throughout the year and supply carbohydrates to the people during the flooded periods.